Transconjunctival approach in lower eyelid blepharoplasty

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AIM: To specify interest and indications of the transconjunctival approach in lower-eyelid plastic surgery.
MATERIALS AND METHODS: Twenty-three cases of inferior blepharoplasty performed through a transconjunctival approach are reported. The authors describe the surgical technique, its indications and results.
RESULTS: The transconjunctival approach provides excellent access to the inferior fatty chambers and is cutaneous scar free. It has a lower complication rate than the classic transcutaneous approach, and no case of cyclid retraction has been reported.
CONCLUSION: In our 'cosmetic society', the inferior blepharoplasty through a transconjunctival approach has taken a significant place in the armamentarium of the esthetic surgeon. Juvenile palpebral lipoptosis without skin excess constitutes the best indication for this technique. It is also indicated in secondary blepharoplasty and in patients presenting with a cicatricial risk or with orbital septum distention.

Key Words: *Esthetic blepharoplasty; Transconjunctival approach*

Une approche transconjonctivale en cas de blépharoplastie de la paupière inférieure

OBJECTIF : Préciser l'intérêt et les indications d'une approche transconjonctivale pour la plastie de la paupière inférieure.
DOCUMENTATION ET MÉTHODOLOGIE : Vingt-trois cas de blépharoplastie exécutés selon l'approche transconjonctivale sont présentés. Les auteurs décrivent la technique chirurgicale, ses indications et ses résultats.
RÉSULTATS : L'approche transconjonctivale assure un excellent accès aux cavités graisseuses et évite les cicatrices cutanées. Elle présente un taux de complications plus faible que la approche transcutanée classique, et aucun cas de rétraction de la paupière n'a été déclaré.
CONCLUSION : Dans notre société « esthétique », la blépharoplastie inférieure par approche transconjonctivale a pris une place de choix dans l'arsenal du plasticien. Une lipoptose palpébrale juvénile sans excès cutané représente la meilleure indication pour privilégier cette technique. Elle est également indiquée en cas de blépharoplastie secondaire et chez les patients présentant un risque de cicatrice ou de distension de la cloison orbitaire.

Eyelids have three functions for the eye : protection, lachrymal draining and expression of the face.

The orbit and surrounding tissues form the emotional and expressive center of the face. Eye contact forms a large part of human interaction and, unfortunately, it is often this region that first surrenders to the aging process.

The upper eyelid is more mobile than the lower one, and covers the totality of the cornea when closed. Lower eyelid fat constitutes bags and is visible in opened and closed position.

To improve the esthetics of the eyelid, rejuvenation surgery has two targets: the orbital septum, which retains the orbital fat posteriorly, and skin, which can be in excess.

The transconjunctival approach was first described in 1924 by Bourguet (1), a French surgeon. This technique has been reported by many authors to be their approach to the lower orbital fat (2-6), and the inferior orbital surface (7-9).

It seems that the transconjunctival approach avoids many complications of the classic transcutaneous lower blepharoplasty (10). A better knowledge of the complications and limitations of the transcutaneous approach gave new impetus to the transconjunctival approach. Because of the excellent cosmetic and scar-free results, this technique is 'in vogue'.

MATERIALS

During the period March 1994 to May 2000, 23 patients underwent esthetic blepharoplasty with a transconjunctival approach. All blepharoplasties were performed by the same operator (DK). Eight patients were male and 15 female, with a mean age of 38 years. All patients underwent a retroseptal approach.

In 20 cases, the patients were young, with isolated bilateral saddle bags and without excess skin. In one case, this technique was performed because of a medical history of cheloid scarring. In two cases, older patients with excess skin and orbital septum laxity underwent the transconjunctival approach to avoid postoperative retraction (round eye).

Surgery was performed under local anesthesia conditions in 17 cases. In three cases, premedication with diazepam was given before administration of intravenous droperidol, followed five minutes later by an intravenous injection of phenoperidine. The remaining three cases underwent general anesthesia because of an associated facelift.

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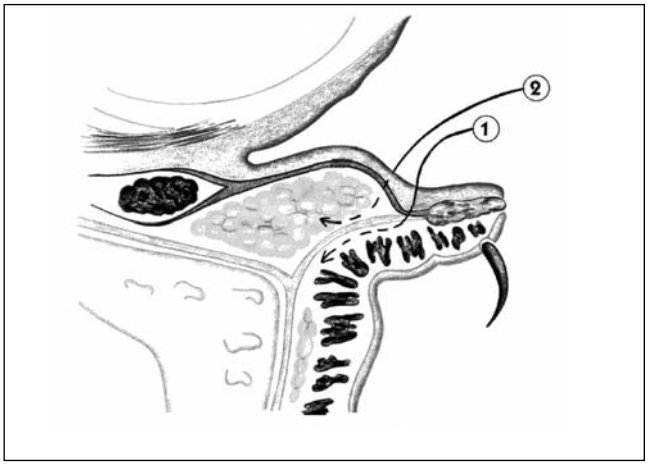

Figure 1) *Transconjunctival lower blepharoplasty.* ***1*** *Preseptal approach;* ***2*** *Retroseptal approach*

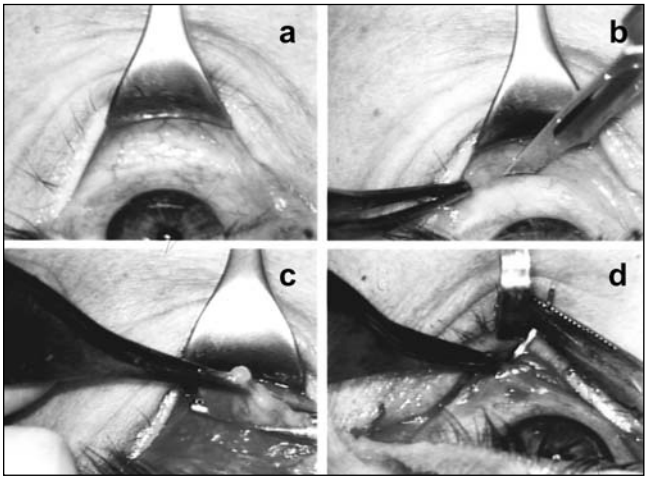

Figure 2) *Transconjunctival lower blepharoplasty.* ***a*** *Retraction of the central portion of the lower eyelid with a Desmarres retractor;* ***b*** *Conjunctiva incision;* ***c*** *Fat excision;* ***d*** *Conjunctiva suture*

METHOD: SURGICAL TECHNIQUE ANATOMY

The transconjunctival approach is the most direct approach to the inferior orbital fat, located posteriorly to the orbital septum (11).

Pouches can be treated through two surgical approaches (Figure 1). The preseptal dissection plane is performed through a conjunctival incision, 2 mm under the inferior edge of the tarsus. To reach the fat, the septum must be incised following separation of the septum and the orbicularis oculi muscle. This technique is used to minimize bleeding and fat extrusion into the operating field. Many septal punctures are necessary in this technique to reach all the fatty chambers, as in the classic external approach.

The retroseptal dissection plane is performed through a lower conjunctival incision, 3 to 5 mm under the inferior edge of the tarsus, avoiding the inferior conjunctival fornix. This technique procures a direct access to the inferior orbital fat without wounding the septum.

Anesthesia

Transconjunctival blepharoplasty can be performed under local or general anesthesia conditions.

Local anesthesia requires the use of a topical anesthetic (Oxybuprocaïne, Merck Sharp and Dohme-Chibret, France) in the inferior fornix before a cutaneous injection of 1 to 2 cc of Xylocaïne 0.5% with adrenalin 1% (Astrazeneca, Mississauga, Ontario) in front of the infraorbital nerve. The injection must be completed under the palpebral conjunctiva.

In patients requiring an associated upper eyelid blepharoplasty, local anesthesia can be completed with premedication as described before. In patients requiring a much longer associated surgical procedure such as facelift, general anesthesia is recommended for better comfort.

For all anesthesia conditions, an anesthetist should be present during surgery.

Surgical technique

The patient is supine, with the operating table in a 15 to 20° anti-Trendelenburg position to reduce perioperative bleeding in the operating field. The central portion of the lower eyelid is retracted with a Desmarres retractor (Figure 2a) or with two surgical threads placed on the edge of the lower eyelid after it has been bent downward. The eyeball is protected with an orbital metallic strip or with two surgical threads placed on the palpebral conjunctiva and pulled upward to cover the cornea.

To exteriorize inferior orbital fat over the edge of the inferior orbital surface, the eyeball is pushed in with the orbital metallic strip. The incision can be performed with a scalpel (number 11 or number 15 blade), an electric scalpel or a laser.

The conjunctiva is incised directly over the prolapsed fat, 2 mm under the inferior edge of the tarsus for the preseptal approach and 3 to 5 mm under the inferior edge for the retroseptal approach (Figure 2b).

In all cases, the incision should be made at a distance from the fornix to avoid synechia or wounding of the inferior oblique muscle. The conjunctival incision is performed from the lacrimal caruncle to the external canthus, if necessary, to explore orbital fat or to perform a canthopexy.

To avoid wounding the lacrimal canaliculi, the incision must be made 4 mm from the inferior lacrimal puncta. Hemostasis should be performed with either bipolar cauterization forceps, laser or electric scalpel.

After the incision is made, the orbital fat appears and can be exteriorized by a slight posterior pressure on the eyeball. Laterally, the aponeurosis of the inferior oblique muscle is attached to the bony orbital edge and separates the central and lateral fatty chambers. Its incision links together the two chambers, and allows a perfect exposition of the lateral chamber. Inside, the muscle fibres separate the central and internal fatty chambers. The internal chamber is difficult to locate and excising the central fat can help to identify it.

Fat excision should not exceed the quantity that is exteriorized when pushing the eyeball in slightly. Surgeons must always be careful not to resect too much fat to avoid enophthalmia. The fat must be excised with iridectomy scissors after cauterization, and hemostasis must be checked before the fat is retracted into the orbit (Figure 2c). This step is most important in the avoidance of postoperative hematoma. After bilateral fat excision, fat quantity must be compared according to the preoperative clinical bags assessment. Closure is performed with one medial inverted suture, using resorbable 6/0 thread (Figure 2d). Some surgeons do not use any sutures.

Postoperative after effects

At the end of surgery, the eyelid is pulled upward to align the anatomical planes to avoid synechia or palpebral retraction. Antibiotic and anti-inflammatory eye drops are applied to the conjunctiva, and no specific dressing is used, except the application of cold wet compresses for two hours. Refrigerated gel glasses can be worn after surgery for a few days to extend anti-inflammatory action. Ecchymosis is rare and minimal edema can persist up to one week. Postoperative photos are taken three months after surgery for evaluation.

RESULTS

The average operating time for bilateral lower eyelid transconjunctival approach was 40 min. All patients were followed-up for three months with medical control at day 1, day 7, day 30 and day 90 after surgery.

Surgical after effects

Moderate edema of the lower eyelid has been reported in five patients and fast resolved ecchymosis has been noted in two patients. One case of red eye occurred in the early postoperative time and was treated as a keratitis. Twenty-four hours later, ophthalmological examination concluded this to be an allergic reaction to the eye drops. Complete healing was noted after 10 days of ophthalmic treatment.

The main complication of this approach seems to be the undercorrection of the orbital bags, due to an insufficient fat resection. That happened in two patients and concerned the internal fatty chambers in both cases. One patient underwent a secondary blepharoplasty through the same approach to complete the fat resection.

DISCUSSION

Inferior blepharoplasty is very efficient for the correction of orbital bags (12). Transcutaneous and transconjunctival approaches have similar success rates.

The transconjunctival approach allows a safe and quantified excision of orbital fat (13). By avoiding the anterior planes of the lower eyelid, it avoids scarring and reduces the risk of retraction. Classical complications are more rare with transconjunctival than with transcutaneous blepharoplasty (ectropion, entropion, fat overresection, inferior oblique muscle palsy) (14,15).

Postoperative hemorrhage is very rare but must be identified early. Some series have reported 0.5% to 1% average incidence for transconjunctival and transcutaneous approaches (10,16,17). To reduce this incidence, intraoperative hemostasis must be very meticulous. Closing with a single suture enables the evacuation of hemorrhage and avoids early orbital hematoma in the event of hemorrhage.

The transconjunctival approach is attractive because neither retraction nor ectropion have been reported. These complications are common with the external approach: retraction occurs in 15% to 20% and ectropion in 1% (10,14). In 1997, Mullins et al (15) reported 400 cases where the transconjunctival approach was used, resulting in a 3% scleral show and no ectropion.

Palpebral retraction can occur in patients without skin resection after incision of the skin, septum and orbicularis oculi muscle (18). The transconjunctival approach avoids incision of these tissues, and minimizes the retraction risk. In patients with excess skin, a minimal transcutaneous approach (pinch technique) (19) can be combined with the transconjunctival approach to avoid wounding the septum.

Entropion is exceptional after a transconjunctival approach, despite the incision of palpebral retractile tissues. Transitory postoperative diplopia has been reported in some series and is induced by the intraorbital injected anesthetic (20). It never lasts more than 2 h and always resolves.

Granuloma occurred on the conjunctival suture in 0.25% of Mullins et al (15) series. Wounding of the eyeball is always possible and should be prevented by the use of corneal protections.

Wrinkles of the lower eyelid can persist after surgery for up to three months. After three months the wrinkles can be treated with laser or chemical peeling.

The most common complication is the saddle bag undercorrection with underexcision of the orbital fat, while overcorrection is particularly rare (Table 1). For proper evaluation of the fat excision, the lipectomy should begin with the medial chamber to give wider access to the other chambers.

Skin excess, muscular excess or wrinkles are not indications for the transconjunctival approach.

Indications for the transconjunctival approach

In esthetic blepharoplasty, the authors always use the retroseptal transconjunctival approach. The preseptal approach is used for inferior orbital surface surgery to avoid fat exposure in a narrow operating field.

The best indication for blepharoplasty through a transconjunctival approach is palpebral juvenile lipoptosis without cutaneous excess. Patients with remnant bags after transcutaneous blepharoplasty due to insufficient fat excision also con-

TABLE 1
Transconjunctival blepharoplasty postoperative complications

Series (reference)	Palmer et al (16)	Schwartz and Randall (13)	Baylis et al (6)	Mahe (2)	Korchia et al (current study)
n	40	10	122	22	23
Remnant bags (%)	10	20	7.4	4	8.7
Fat overexcision	0	0	0	0	0
'Round eye'	0	0	0	0	0
Remnant wrinkles (%)	2.5	0	1.6	0	0
Inferior oblique muscle palsy	0	0	0	0	0
Hematoma (%)	0	0	0.8	0	0
Infection	0	0	0	0	0
Blindness	0	0	0	0	0

Figure 3) *Case 1: Transconjunctival lower blepharoplasty.* ***a and b*** *preoperative;* ***c and d*** *postoperative*

Figure 4) *Case 2: Transconjunctival lower blepharoplasty.* ***a and b*** *preoperative;* ***c and d*** *postoperative*

stitute a good indication for the transconjunctival approach. This technique is also indicated in patients with high risk of cheloid scarring or other healing problems (ie, hypertrophic scarring, dyschromia).

In older patients, septal laxity can be evaluated with the pinch test. The transconjunctival approach avoids postoperative retraction (eyelid retraction or iatrogenic ectropion). If excess skin is noted in these older patients, minimal cutaneous excision can be performed in association with the transconjunctival approach to preserve the septum. Conversely, major skin excess in patients with thick skin should be operated on through a classic transcutaneous approach.

Face lifting for rejuvenation always induces traction on facial tissues and the transconjunctival approach allows a lipectomy without increasing the retraction effect on the lower eyelid.

CASE PRESENTATIONS

Two cases are reported. Both patients underwent a complete preoperative and postoperative photographic study. The first case was a 37-year-old woman with major palpebral lipoptosis, predominating on the left side (Figure 3a and 3b). Postoperative result one year after surgery is good, with the persistence of micro wrinkles (Figure 3c and 3d).

The second case is a 50-year-old woman with major palpebral bags (Figure 4a and 4b). Postoperative result seven months after surgery is obvious with an excellent skin redraping (Figure 4c and4d).

CONCLUSION

In our 'cosmetic' societies, transconjunctival blepharoplasty has taken a major place in the armamentarium of the esthetic surgeon. This approach is extremely efficient on inferior orbital excess fat reduction. It is attractive because it is scar free and minimizes the risk of tissue retraction. It is best indicated in juvenile palpebral lipoptosis in patients with good skin quality. However, it can be performed in all patients, and can be used in conjunction with the pinch technique. Facial lifting is often performed in association with a transconjunctival approach.

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